

Second Annual Report to NOAA Office of Global Programs

**Project title: “Improving Climate Forecast Communications
for Farm Management in Uganda”**

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Grant no. NA06GP0308

Period covered by this report: August 1, 2001 to July 31, 2002

I. Background Materials

Abstract:

Interannual climate variability in eastern Africa is strongly influenced by the El Niño/Southern Oscillation, and the region is therefore a good candidate for implementing seasonal forecasts, especially regarding precipitation in the second half of the year. Despite the great climatological and agronomic variety in Uganda, nearly all farmers are highly rainfall dependent. In sum, there is potential for use of seasonal climate forecasts in Uganda. Yet, this potential for use of forecast information is not being realized, partially as a result of a communication gap between the forecast-producers and the forecast-users.

Our project seeks to address this gap through the development of a series of radio programs in African languages that will reach farmers with climate information that is relevant to local farming systems. Surveys, open-ended interviews, focus groups and the collection of weather-related narratives among Luganda-speaking farmers in central Uganda will serve as the basis for the first set of radio programs. The field research team includes a linguist, professional radio journalists, an agricultural meteorologist, and agricultural extension specialists to assure that the program material draws on the complex nuances of weather and risk descriptions in the local languages and that it meets the local cultural expectations of information transmission in media. Above all, we seek to tailor the programs to the particular cropping systems that shape farmers’ needs and to the specific organizations in communities that permit information flow. In order to improve opportunities for group discussion of radio program content and implications for farm management, we will form of radio listening groups in a number of villages.

Surveys will be conducted before and after the transmission of the radio programs to assess the level of access to the programs, perceptions of the programs, and use of information. We anticipate that the use of forecasts will vary depending on the particular cropping systems of each household and village as well as on the level of reliance on off-

farm income sources. On the basis of lessons learned in the first region, we will develop radio programs in two other languages in two other, quite different regions in the country. Because of the high linguistic diversity of Uganda, each language is spoken in an area of relatively uniform climatological conditions, making it possible to target forecasts and forecast products to each specific language group. We are optimistic that this process of slowly adding regions with customized services will prove far more effective in expanding forecast use than a quicker, more generic, one-size-fits-all effort.

Objectives:

Our primary goal is to use information about language, culture, access to media and farming systems to improve the communication of climate forecast information to farmers in Uganda. To accomplish this, we will

- a) Perform field work consisting of surveys, interviews and focus groups to gather information;
- b) Develop and air a series of radio broadcasts, and set up a program of radio listening groups;
- c) Evaluate effectiveness of radio programs through follow-up interviews and focus groups.
- d) Establish a set of workshops for personnel in the National Meteorological Service and the Ministry of Agriculture.

Approach:

Our approach for data gathering is a combination of ethnographic, open-ended interviews, and quantitative surveys, performed by an interdisciplinary team. The team is composed of an agro-climatologist, journalists, a linguist specializing in African languages, and an extension agent. Three communities in different language groups are targeted for the set of data-gathering, broadcast, and evaluation activities over the three-year project. Lessons learned in each language group will inform the next. Periodic participation in field work and workshops by the Uganda Meteorological Service will contribute to sustainability of the communications activities after the end of the project.

Matching funds: Salaries of the two P.I.s for approximately 2 months per year are contributed in kind.

II. Interactions

Interactions with decision makers:

This project is designed specifically to link the Met community with agricultural extension and farm-level decision makers. By improving understanding of the decision-making context of the end-users of climate information, communications products can be designed to fit smoothly into the decision process. A majority of the project activities are performed in direct contact with village-level farmers, village leaders, and the extension agents who serve them. This interaction includes the facilitation of radio listening groups

providing a context for farmers to discuss climate information and possible uses appropriate to their farming constraints.

Interactions with climate forecasting community:

One of the two project managers, Paul Isabirye, is an agro-climatologist with the Uganda Meteorological Service. He serves as a direct link to the Met Service for project activities and learning. A series of workshops will bring additional participants from the Met Service to learn about and discuss the project findings.

Interactions with other NOAA CSID divisions

Although this project does not directly link with other CSID programs, one of the P.I.s is currently at the International Research Institute for Climate Prediction and has ample opportunities to interact and share ideas with other CSID researchers.

III. Accomplishments

Tasks accomplished

The sub-contract with our partners in Uganda was finalized in January of 2002, which is a slight delay from our estimated date of August 2001. The subcontract is with Medecos, a not-for-profit organization affiliated with the Uganda Met Service, who will provide accounting and administrative support for the field activities. The project managers, Paul Isabirye and Patrick Luganda, assembled the team to assist in the field work in November and December of 2001. Nakasongola District was selected as the first field site, in the heart of Luganda-speaking territory. The first complete round of interviews and focus groups was complete by the end of March 2002. The draft report from that field work is now being compiled by the project managers. Arrangements for the radio broadcast and radio listening groups are in place, with broadcasts scheduled for June.

Preliminary findings

Based on the fieldwork in Nakasongola District, we have found a very rich mix of terminology and conceptual frameworks for communicating about climate and its interactions with farming systems. Terminology reflects a variety of ways to describe different times of year, different kinds of weather, and different natural phenomena, as well as the same terms being used to describe more than one specific phenomenon. Additionally, there appear to be a variety of views about traditional beliefs. Some say they are fading from local culture, others feel confident in traditional methods, and others are not sure. This will be an important component of the radio program, helping to link, and acknowledge uncertainties in a range of forecasting methods, including traditional and scientific. Finally, the relationship between climate variability and long term climate change appears to be an area of confusion, and will merit attention in the radio program.

Papers, presentations based on research results

At present there are no finished products based on this work but a paper is scheduled for presentation at the American Society of Agronomy Annual Meetings in November of 2002. Also, preliminary material is included in an ethnoclimatology database that Ben Orlove is developing in association with CIESIN. Orlove will also discuss it in a book he is editing, *Climate, Weather and Culture*, co-edited with Sarah Strauss, to be published by Berg in 2003.

Significant deviation from original plan

As has already been presented and approved, this project is now being conducted in Uganda as opposed to Zimbabwe, as a result of the uncertainties associated with civil unrest in Zimbabwe. As a result of delays in re-establishing collaborators in the new setting, we are now approximately one year behind schedule. However, the work plan as drawn based on the Uganda setting, remains correct.

IV. Relevance to the field of human-environment interactions

How our results are relevant to the field

These results emphasize the importance of blending indigenous knowledge and scientific knowledge. The former includes the detailed perceptions of local climatology and climate variability that exist in many settings around the world. Local knowledge is often tied to concrete decision-making needs and social networks; scientific knowledge, which draws on broader data sets, often has the great advantage of increased accuracy or lead time. Our project demonstrates the complementarity of these two.

How this work builds on previous HDGEC findings

This project concept and design is a direct outgrowth of one of the P.I.'s (Phillips) previous findings in the Zimbabwe context, as well as paralleling closely the main thrusts of those of Roncoli and Kirshen, Finan and Carmen Lemos, Galvin, Ellis and Vogel, and Valdivia in their work with small holders in West Africa, Brazil, southern Africa and the Andean region. In general, each research group has found some inhibitors to the use of forecasts by smallholders, but that some of the constraints may be removed by paying attention to developing climate information products that fit the production systems, communication pathways, and cultural perspectives of the user groups for whom they are intended. Our work takes the next step in piloting a method for addressing this need, with Uganda as the test setting.

Our contributions to the field:

Although this work is still in the early stages and major results are pending, we expect to develop a rich foundation of knowledge regarding the context in which climate matters for this subgroup of end users in rural Uganda. This foundation will contribute to

the content and expression of climate information messages that are developed by the Uganda Meteorological Service, as well as facilitate the comprehension and utilization of information for the users themselves. Through this work, we hope to demonstrate the importance of understanding user contexts in developing climate-related communications. Increased interaction provides opportunities for information to flow from the farm household back to the Met community, allowing for targeting of new areas of research more relevant to the needs of the users.

Three areas in particular will be advanced by this work. First, the importance of developing a common frame of reference for assessing both local perceptions of climate forecasts and 'scientific' understanding of climate forecasts will be tested. We expect that allowing perceptions to co-mingle in the decision process will facilitate the appropriate usage of probabilistic information by allowing familiar decision frameworks to be brought to bear with new information. Second, familiar analogies and reference points for uncertain information are likely to exist in any culture. If we, (or climate information providers) can 'discover' these cultural reference points, they can be utilized effectively to convey the probabilistic nature of forecasts that is so crucial to their appropriate use in decision making. Third, we will provide evidence of the utility of facilitated discussion between decision makers (in our case, farmers) on the topic of the role of a particular forecast in farm or livelihood management in improving decision making through evaluation of the radio listening groups.